

Agilent Technologies Australia Pty Ltd  
347 Burwood Highway  
Forest Hill  
Victoria 3131, Australia  
1800 802 402

## Glycerol calibration standard 1 in pyridine, Part Number G3440-85022

### 1. Identification of the material and supplier

#### Names

**Product name** : Glycerol calibration standard 1 in pyridine, Part Number G3440-85022  
**Part No.** : G3440-85022  
**ADG** : PYRIDINE solution

#### Supplier

**Supplier/Manufacturer** : Agilent Technologies Australia Pty Ltd  
347 Burwood Highway  
Forest Hill  
Victoria 3131, Australia  
1800 802 402

**Emergency telephone number** : Chemtrec: +(61)-290372994

#### Uses

**Area of application** : Industrial applications, Professional applications.  
**Material uses** : Analytical chemistry.

### 2. Hazards identification

**Classification** : F; R11  
Xn; R20/21/22  
**Risk phrases** : R11- Highly flammable.  
R20/21/22- Harmful by inhalation, in contact with skin and if swallowed.  
**Safety phrases** : S36/37- Wear suitable protective clothing and gloves.  
**Statement of hazardous/dangerous nature** : HAZARDOUS SUBSTANCE. DANGEROUS GOODS.

### 3. Composition/information on ingredients

**Mixture** : Yes.

Ingredient name	CAS number	Concentration
Pyridine	110-86-1	>60
1,2,4-Butanetriol, (2S)-	42890-76-6	<10

Other ingredients, determined not to be hazardous according to Safe Work Australia criteria, and not dangerous according to the ADG Code, make up the product concentration to 100%.

**There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.**

### 4. First-aid measures

**Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

## **4 . First-aid measures**

- Ingestion** : Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing thoroughly with water before removing it, or wear gloves. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.
- Advice to doctor** : In case of inhalation of decomposition products in a fire, symptoms may be delayed. The exposed person may need to be kept under medical surveillance for 48 hours.

## **5 . Fire-fighting measures**

### **Extinguishing media**

- Suitable** : Use dry chemical, CO<sub>2</sub>, water spray (fog) or foam.
- Not suitable** : Do not use water jet.
- Special exposure hazards** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
- Highly flammable liquid. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapour/gas is heavier than air and will spread along the ground. Vapours may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back. Runoff to sewer may create fire or explosion hazard.
- Hazardous thermal decomposition products** : Decomposition products may include the following materials:  
carbon dioxide  
carbon monoxide  
nitrogen oxides
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
- Hazchem code** : •2WE

## **6 . Accidental release measures**

- Personal precautions** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilt material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see Section 8).
- Environmental precautions** : Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
- Methods for cleaning up** : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Use spark-proof tools and explosion-proof equipment. Dispose of via a licensed waste disposal contractor.

## 7 . Handling and storage

- Handling** : Put on appropriate personal protective equipment (see Section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapour or mist. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use non-sparking tools. Take precautionary measures against electrostatic discharges. To avoid fire or explosion, dissipate static electricity during transfer by earthing and bonding containers and equipment before transferring material. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Storage** : Store between the following temperatures: 18 to 25°C (64.4 to 77°F). Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabelled containers. Use appropriate containment to avoid environmental contamination.

## 8 . Exposure controls/personal protection

### Occupational exposure limits

<b>Ingredient name</b>	<b>Exposure limits</b>
Pyridine	<b>Safe Work Australia (Australia, 8/2005).</b> TWA: 16 mg/m <sup>3</sup> 8 hour(s). TWA: 5 ppm 8 hour(s).

- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment.

### Exposure controls

- Engineering measures** : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapour or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.
- Eyes** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.
- Hands** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
- Respiratory** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Skin** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

## 8 . Exposure controls/personal protection

**Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

## 9 . Physical and chemical properties

**Physical state** : Liquid.  
**Colour** : Colourless.  
**Odour** : Unpleasant.  
**Boiling point** : 115°C (239°F)  
**Melting point** : -42°C (-43.6°F)  
**Vapour pressure** : 2.7 kPa (20 mm Hg) [20°C]  
**Relative density** : 0.978  
**Flash point** : Closed cup: 18.667°C (65.6°F)  
**Flammable limits** : Lower: 1.8%  
 Upper: 12.4%  
**Vapour density** : 2.72 [Air = 1]  
**pH** : Not available.  
**Auto-ignition temperature** : 250°C (482°F)  
**Solubility** : Soluble in the following materials: cold water and hot water.

## 10 . Stability and reactivity

**Chemical stability** : The product is stable.  
**Possibility of hazardous reactions** : Under normal conditions of storage and use, hazardous reactions will not occur.  
**Conditions to avoid** : Avoid all possible sources of ignition (spark or flame). Do not pressurise, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow vapor to accumulate in low or confined areas.  
**Materials to avoid** : oxidizing materials  
 Other: acids.  
**Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

## 11 . Toxicological information

### Potential acute health effects

**Inhalation** : Harmful by inhalation. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.  
**Ingestion** : Harmful if swallowed.  
**Skin contact** : Harmful in contact with skin. May cause skin irritation.  
**Eye contact** : May cause eye irritation.

### Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Pyridine	LC50 Inhalation Gas.	Rat	9010 ppm	1 hours
	LC50 Inhalation Gas.	Rat	4500 ppm	4 hours
	LD50 Dermal	Rabbit	1.12 g/kg	-
	LD50 Oral	Rat	891 mg/kg	-

**Conclusion/Summary** : Not available.

### Potential chronic health effects

#### Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Pyridine	Skin - Mild irritant	Rabbit	-	24 hours 500 milligrams	-

**Conclusion/Summary** : Not available.

#### Sensitiser

**Conclusion/Summary** : Not available.

## 11 . Toxicological information

### Chronic toxicity / Carcinogenicity / Mutagenicity / Teratogenicity / Reproductive toxicity

Not available.

<b>Chronic effects</b>	: No known significant effects or critical hazards.
<b>Carcinogenicity</b>	: No known significant effects or critical hazards.
<b>Mutagenicity</b>	: No known significant effects or critical hazards.
<b>Teratogenicity</b>	: No known significant effects or critical hazards.
<b>Developmental effects</b>	: No known significant effects or critical hazards.
<b>Fertility effects</b>	: No known significant effects or critical hazards.

### Over-exposure signs/symptoms

<b>Inhalation</b>	: No specific data.
<b>Ingestion</b>	: No specific data.
<b>Skin</b>	: No specific data.
<b>Eyes</b>	: No specific data.
<b>Target organs</b>	: Contains material which may cause damage to the following organs: blood, kidneys, the nervous system, liver, gastrointestinal tract, upper respiratory tract, skin, eyes, central nervous system (CNS).

## 12 . Ecological information

<b>Ecotoxicity</b>	: This material is harmful to aquatic life. May cause long-term adverse effects in the aquatic environment.
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### Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
Pyridine	Acute EC50 100000 to 180000 ug/L Fresh water	Algae - Selenastrum sp.	72 hours
	Acute EC50 110000 ug/L Fresh water	Algae - Selenastrum sp.	96 hours
	Acute LC50 182000 ug/L Fresh water	Crustaceans - Gammarus pulex	48 hours
	Acute LC50 520000 ug/L Fresh water	Daphnia - Daphnia pulex - <24 hours	48 hours
	Acute LC50 26000 ug/L Fresh water	Fish - Cyprinus carpio - 4 to 5 cm	96 hours

### Other ecological information

#### Bioaccumulative potential

Product/ingredient name	LogP <sub>ow</sub>	BCF	Potential
Pyridine	0.65	-	low

<b>Other adverse effects</b>	: No known significant effects or critical hazards.
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## 13 . Disposal considerations

<b>Methods of disposal</b>	: The generation of waste should be avoided or minimised wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Significant quantities of waste product residues should not be disposed of via the foul sewer but processed in a suitable effluent treatment plant. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilt material and runoff and contact with soil, waterways, drains and sewers.
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## 14 . Transport information

Regulation	UN number	Proper shipping name	Classes	PG*	Label	Additional information
ADG	UN1282	PYRIDINE solution	3	II		<b>Hazchem code</b> •2WE
IMDG	UN1282	PYRIDINE solution	3	II		<b>Emergency schedules (EmS)</b> F-E, S-D

**14 . Transport information**

<b>IATA</b>	UN1282	Pyridine solution	3	II		<b>Passenger and Cargo Aircraft</b> Quantity limitation: 5 L Packaging instructions: 353 <b>Cargo Aircraft Only</b> Quantity limitation: 60 L Packaging instructions: 364 <b>Limited Quantities - Passenger Aircraft</b> Quantity limitation: 1 L Packaging instructions: Y341
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PG\* : Packing group

**15 . Regulatory information**[Standard for the Uniform Scheduling of Drugs and Poisons](#)

Not regulated.

[Control of Scheduled Carcinogenic Substances](#)

<a href="#">Ingredient name</a>	<a href="#">Schedule</a>
No listed substance	

[Australia inventory \(AICS\)](#) : Not determined.**16 . Other information****Date of issue** : 19/04/2012**Date of previous issue** : No previous validation.
 Indicates information that has changed from previously issued version.

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